

REMARKS

Applicants request favorable reconsideration and allowance of this application in view of the foregoing amendments and the following remarks.

Claims 1-4, 8-10, 18-23, 27-29, and 37-39 are pending in this application, with Claims 1, 20, and 39 being independent.

Claims 5-7, 11-17, 24-26, and 30-36 have been cancelled without prejudice and Claims 1, 8, 20, 27 and 39 have been amended. Applicants submit that support for these amendments can be found in the original disclosure, and therefore no new matter has been added.

Claims 1-11, 14, 15, 17-19, 20-30, 33, 34, and 36-39 remain rejected under 35.U.S.C. §102(b) as being clearly anticipated by U.S. Patent No. 5,577,981 (Jarvik). Claims 12, 13, 16, 31, 32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvik. Applicants respectfully traverse these rejections for the reasons discussed below.

The present invention recited in independent Claims 1, 20, and 39 is directed to a mixed reality apparatus. The essential characteristic of this type of apparatus is that images of virtual objects are superimposed on the operator's view of a real space or an image of the real space. Thus, the operator views a real scene which has additional virtual objects superimposed thereon. This is in contrast to a virtual reality apparatus, in which the operator views a combination of generated and recorded images. Although some of those images may originate as real images (rather than computer generated images), the operator is not viewing a real space but only a virtual scene.

To achieve the mixed reality function, the present invention includes (as recited in Claim 1, for example) the features of a viewpoint detection unit adapted to detect the location/posture of a viewpoint of an operator, an inputting unit adapted to input a real space image corresponding to the location/posture of a viewpoint of the operator, and a presentation unit adapted to generate at least one image of a virtual object and to represent a mixed reality space to the operator by superimposing the image(s) of the virtual object on the operator's view of the real space. Claims 20 and 39 recite similar features.

Applicants submit that the cited art does not disclose or suggest at least these features. In particular, Applicants respectfully submit that Jarvik is directed to a virtual reality device rather than a mixed reality device. Jarvik itself uses the term “virtual” to refer to the disclosed system. *See, e.g.*, Col. 11, lines 30, 46 & 51; Col. 12, line 1; Col. 13, lines 5 & 29.

The Examiner asserts that Jarvik discloses a mixed reality system, citing to Col. 11, lines 30-55 and Col. 13, lines 3-4. Applicants respectfully submit that the cited portions of Jarvik do not disclose or suggest a mixed reality system. Instead, the cited portions merely state that the virtual environment viewed by the user may be a composite of photographic images with superimposed computer-generated images, and that the virtual scene may also include images of the user's body parts. To achieve this effect, the user wears fluorescent clothing and a video camera 148 captures images of the user's body parts.

However, this disclosure does not teach or suggest superimposing images of virtual objects on an operator's view of a real space. Only images of the user's body parts are used, not the entire view of real space. Moreover, Jarvik discloses that the images of

the user's body parts capture by camera 148 are "superimposed by the computer, over other images on the video display screen . . . to create the complete virtual environment scene." Col. 11, lines 43-47. Thus, even where images of a user's body parts are used, the scene displayed to the user is a virtual scene combining those images with other virtual images (either computer generated images or photographic images of other locations).

Accordingly, Applicants submit that the cited art does not disclose or suggest at least the above-mentioned features of Claims 1, 20, and 39, and in particular does not disclose or suggest the feature of representing a mixed reality space to an operator by superimposing the image(s) of virtual objects on the operator's view of a real space.

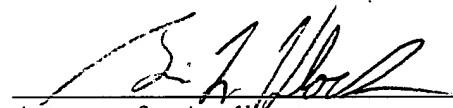
Further, the present invention as recited in Claim 1 also includes, *inter alia*, the feature of a computation unit adapted to determine the next action of virtual object(s) by referring to a rule memory based on a relation among the location/posture of a viewpoint of the operator, location(s) of the virtual object(s) and geometric information of real object(s). Claims 20 and 39 recite similar features. Applicants submit that Jarvik also fails to disclose or suggest this feature.

In view of the foregoing, Applicants submit that the present invention recited in Claims 1, 20, and 39 is patentable over the cited art. The dependent claims are patentable at least for the same reasons as the independent claims, as well as for the additional features that they recite.

For the foregoing reasons, Applicants submit that this application is in condition for allowance. Favorable reconsideration, withdrawal of the outstanding rejections, and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicants
Brian L. Klock
Registration No. 36,570

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
BLK\lmj